

05 – Functions in a nutshell

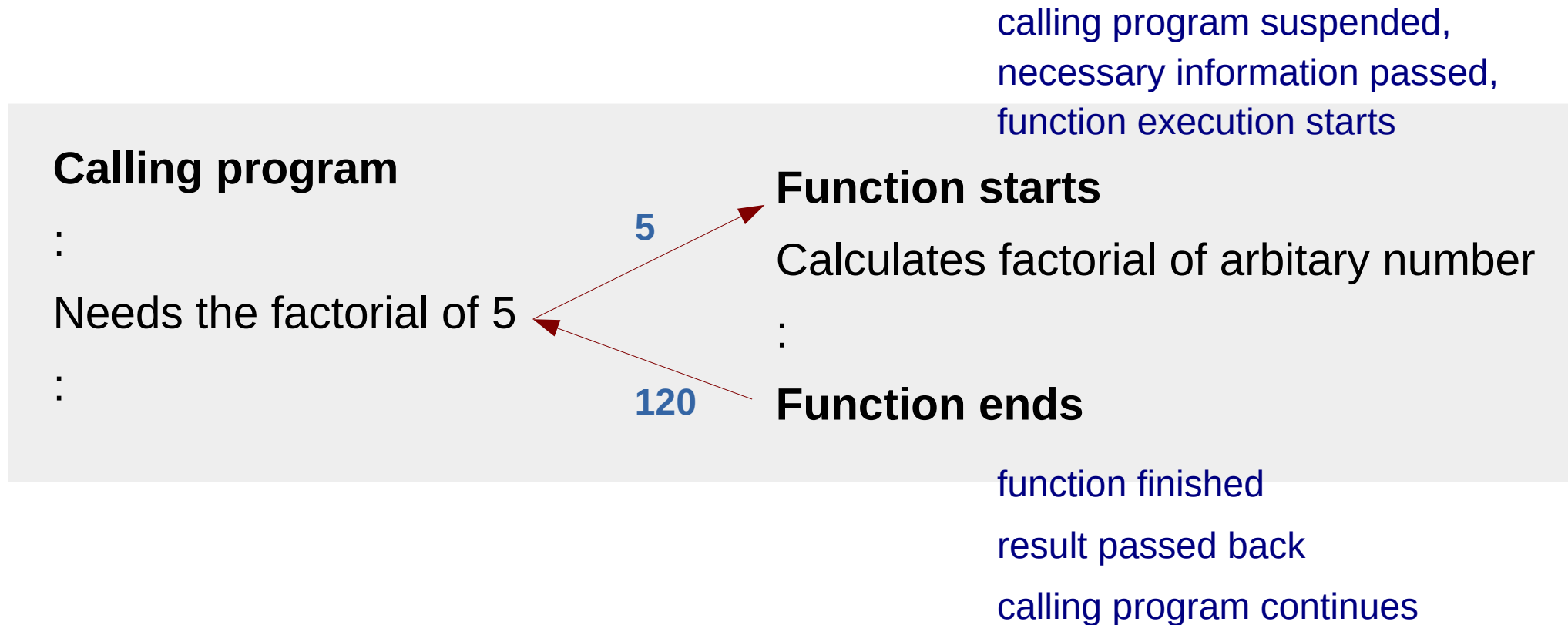
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Scientific Programming in Python (2026)

<https://atticlectures.net/scipro/python-2026/>

Concept

Function (procedure) = reusable code container, which **communicates** with other parts of the code only through a **well defined interfaces**



Definition and calling

Function definition

```
def factorial(nn):  
    """Calculates the factorial of a number.  
    Args:  
        nn: Number to calculate the factorial of.  
    Returns:  
        Factorial of the argument.  
    """  
    result = 1  
    for ii in range(2, nn + 1):  
        result *= ii  
    return result
```

Calling code

```
aa = factorial(5)  
aa  
120
```

Value
returned

Function arguments and return value

```
def functionname(arg1, arg2, ...):  
    """Documentation string"""  
    Subprogram statements  
    ...  
    return result
```

- Multiple arguments are possible

```
def multiply_numbers(aa, bb):  
    return aa * bb
```

```
product = multiply_numbers(10, 12)  
product  
120
```

- Return value is optional

```
def print_greeting(name):  
    print(f"Hello {name}!")
```

```
print_greeting("World")  
Hello World!
```